the A and B mutated Hoxb4 expressing progenitors had a significantly greater contribution to the PBL recovery in comparison to Hoxb4(WT) ($p < 0.05$). Together, these studies strongly suggest that different intracellular levels of Hoxb4 protein are affecting different types of hematopoietic progenitors. Early *ex vivo* expansion of clonogenic progenitors was achieved with mutated Hoxb4 proteins without impairing HSC long-term reconstituting ability. Thus, mutated Hoxb4 could represent a useful tool to accelerate engraftment after HSC transplantation.

SUPPORTIVE CARE

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THE USE OF RECOMBINANT HUMAN ERYTHROPOIETIN (RHUEPO) AFTER REDUCED INTENSITY CONDITIONING (RIC) ALLOGENEIC HEMATOPOIETIC PERIPHERAL BLOOD STEM CELL TRANSPLANTATION (ASCT) REDUCES RED BLOOD CELL (RBC) TRANSFUSION REQUIREMENTS

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We previously reported that hemoglobin (Hb) recovery was hastened after RIC ASCT as compared with ASCT after myeloablative conditioning (Transfusion, 44:501-8, 2004). In this setting pretransplant Hb level becomes the major predictive factor for early Hb recovery posttransplant and RBC transfusion (RBCT) requirements. We subsequently reported the efficacy of early rHuEpo administration after RIC ASCT to hasten Hb reconstitution (BMT, 36:901-6, 2005). Here we further confirm that early post-transplant rHuEpo after RIC reduces also RBC requirements. 40 pts surviving at least 60 days were analyzed. Pts characteristics were as follow: age: 50 (27-64); M/F: 28/12; with myeloid (4), lymphoid (29) or solid (7) malignancies. They received a RIC (Fludarabin (150 mg/m; Busulfan (8mg/kg) and thymoglobulin (2.5 to 5 mg/kg)) followed with an ASCT (all PBSC) from a HLA identical sibling. Aranesp(Amgen, France) was started on day 1. The 20 first pts received an infusion of 150 mcg/week while the 20 last pts were subsequently treated with 500 mcg/ 3 weeks. Aranesp was administered intravenously when inpatient and subcutaneously when outpatient. Aranespadministration was sustained until day 60 or when pts reached a Hb level of 140 g/L, whichever occurred first. Overall pts were treated for a median of 7 weeks post transplant. No serious adverse effect or thrombosis episode was reported. This cohort of 40 pts experienced a quicker Hb recovery and lower RBCT requirements than a historical and comparable control group of 27 pts (Day +30 Hb: 114 (94-141) vs. 100 (80-129), $p<.0001$; pts with 0 or 1 RBCT: 83% vs. 55% ($p=.02$)). Thirteen of the 40 pts (33%) presented with an Hb level of 120 g/L or more prior to conditioning. Over the first 60 days, these pts received 0 (0-2) RBCT as compared with 1 (0-2) RBCT for pts with a pre-RIC Hb level < 120 g/L ($p=.05$). On this basis, we hypothesized the interest of increasing Hb level prior to RIC by adequate rHuEpo stimulation. With this perspective, we have treated 13 pts with Aranesp(500 mcg, SC) 3 weeks prior RIC. Nine of these 13 pts (69%) reached an Hb level of 120 g/L or more on day -7 as compared to 35% in patients not receiving Aranesp prior to RIC ($p=.04$). This indicates that Aranesppost RIC ASCT is efficient to hasten Hb recovery and decrease RBCTs. In addition, a comprehensive strategy to minimize RBCT in this setting might include pre-transplant stimulation. We will prospectively assess this hypothesis.

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PROSPECTIVE ORAL MUCOSITIS AUDIT (POMA): OCCURRENCE AND CONSEQUENCES OF SEVERE ORAL MUCOSITIS IN HIGH DOSE MELPHALAN AND BEAM CONDITIONING

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Oral mucositis (OM), an adverse effect of myeloablative regimens, seriously affects patient well-being and may increase systemic infection risk and delay recovery. Trial-based reports of OM vary widely, with evidence of underreporting and limited data on the incidence and impact in routine practice. Initiated by the EGBMT, this study observed pts with multiple myeloma (MM) or non-Hodgkin's lymphoma (NHL) from 25 transplant centres across 13 EU countries receiving high dose melphalan or BEAM then autologous stem-cell transplant. Aims were to assess duration and incidence of severe (WHO oral toxicity scale Grade III-IV) and ulcerative (Grade II-IV) OM, resource use for OM prevention and treatment, and associations with infection and hospitalisation duration. Prospective OM assessments were done daily from the conditioning start to 30 days post-transplant or hospital discharge. To achieve high and consistent quality of assessment, nurse assessors had multimedia-assisted face-to-face training prestudy. Of 197 evaluable pts, 110 (56%) had MM and 87 (44%) had NHL. Mean age was 57±8 yrs for MM (36% women) and 50±13 yrs for NHL (51% women); 94% had ECOG status ≤1. Severe OM incidence was 46% (95% CI 37-56%) for MM and 41% (95% CI 31-52%) for NHL. Severe OM mean duration was 5.4±3.3d (95% CI 4.6-6.3d) in MM and 5.3±3.2d (95% CI 4.3-6.4d) in NHL. Ulcerative OM incidence was 67% (95% CI 58-76%) in MM and 60% (95% CI 49-70%) in NHL (mean duration 6.6±4.4d [95% CI 5.6-7.6d] and 6.5±3.8d [95% CI 5.6-7.7d]). WHO scale results and symptom indicators showed similar temporal patterns (max ~ day 12 post-conditioning) in both groups. Clinically relevant associations with disease/conditioning type or gender were not detected. A non-significant trend hinted at an association of OM duration with age. Fever ≥38°C incidence was 68% in pts with severe OM v 47% in pts without (univariate $p=.004$; odds ratio 2.4 [95% CI 1.3-4.4]). Mean length of stay±SD (truncated at 30d posttransplant) was 21±4d in pts with severe OM v 20±5d in pts without (univariate $p=.023$). Preliminary multivariate analyses adjusting for other potential predictors confirmed these effects. Severe OM was a substantial clinical problem with high dose melphalan or BEAM conditioning chemotherapy. Associations with fever occurrence and length of stay indicate potentially harmful clinical sequelae and economic consequences. Associations with confirmed infection and resource use remain to be assessed.

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COST ANALYSIS OF ALLOGENIC PERIPHERAL BLOOD TRANSPLANTATION: IMPACT OF DEGREE OF MUCOSITIS AND USAGE OF PALIFERMIN

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Background: Oral mucositis is associated with increased clinical events and healthcare resource utilization in patients receiving hematologic stem cell transplantation (HSCT) following myleoablative therapy. Palifermin is a recombinant human keratinocyte growth factor approved to prevent severe oral mucositis. The impact of palifermin in the allogenic peripheral blood (PBSCT) and the costs associated has not been quantified.

Aim: To assess the clinical and economic impact of palifermin use in allogeneic HSCT patients.

Method:

This was a retrospective review of 21 patients undergoing allogenic HSCT following myeloablative chemotherapy at The Alfred from June 2004-October 2005; versus allogeneic HSCT patients receiving palifermin from October 2005-July 2006. We calculated descriptive statistics on duration and grade of oral mucositis; hospital length of stay (LOS), antibiotic use; antifungal use; and total parenteral nutrition (TPN). Costs were determined through data extracts from the hospital's clinical costing system and through retrospective medical record review.

Results:
There were twenty-one patients in the historic control group. The total cost of the hospital admissions was $AUD1,771,448 (average $AUD84,354, range $AUD28,856-276,989). Total pharmaceutical costs for all 21 patients was $AUD 798,583, representing 45% of total costs.

Twenty (95%) patients in the historical group experienced mucositis with 48% having grade 3 or 4. All five patients who received palifermin experienced mucositis but no patients had grade 3 or 4. The average number of TPN days was 8.3 days (median 9.5 days) in the control group compared to 12.2 days (median 9.0 days) in palifermin recipients. Patients that received palifermin had a mean LOS of 34.4 days (median 25 days) compared to mean of 36.5 days (median 35) for the control group.

Conclusion:
Palifermin usage was associated with a decreased incidence and severity of oral mucositis with a reduction in LOS, antibiotic and antifungal costs. Further validation of these results is required in a larger cohort of patients.

Impact of Degree of Mucositis and Usage of Palifermin

	Historical Contol (n=21)	Palifermin treated group (n=5)
Mucositis any Grade - mean days duraton	14	8
Mucositis Grade 3 or 4 - mean days duration	3.3	0
Mucositis grade 3 or 4 - pts (%)	11 (52.4)	0 (0)
TPN usage - mean days duration	8	12.2
TPN usage - median days duration	9.5	9.0
Duration of hospitalisation - mean days	36.5	34.4
Duration of hospitalisation - median days	35.0	25.0
Antifungal usage - mean $AUD	$15,728	$12,854
Antifungal usage - median $AUD	$10,720	$2,389
Total cost antibiotics, antifungals, TPN - mean $AUD	$20,929	$18,811
Total cost antibiotics, antifungals, TPN - median $AUD	$15,553	$5,605

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IMPACT OF PALIFERMIN ON HOSPITAL RESOURCE CONSUMPTION ASSOCIATED WITH ALLOGENIC PERIPHERAL BLOOD TRANSPLANTATION AND TOTAL BODY IRRADIATION

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Background: The impact of oral mucositis associated with autologous stem cell transplantation (SCT) following high dose chemotherapy and radiotherapy has been evaluated in the clinical trial setting to assess the effects of palifermin. The impact of palifermin in the allogenic peripheral blood (PBSCT) and TBI and the costs associated has not been quantified.

Aim:
To perform an analysis of the costs associated with allogenic PBSCT in patients who received TBI and assess the impact of oral mucositis and palifermin.

Method:
The costs associated with patients undergoing allogenic PBSCT and TBI following high dose chemotherapy were quantified. Consecutive patients who received palifermin (Oct 05-July 06) and a control group (June 04-Oct 05) that had not were included. Costs were determined through data extracts from the hospital's clinical costing system and through retrospective medical record review. Incidence, duration and grade of mucositis, length of hospital stay (LOS), anti-infective use and requirements for total parenteral nutrition (TPN) were quantified.

Results:
There were eleven patients in the historic control group and ten (91%) experienced mucositis. Five patients were evaluated in the palifermin group and all experience mucositis. The average number of days of oral mucositis was 8.0 days in the palifermin group compared to 17 days in the control group. None of the palifermin treated patients experienced grade 3 or 4 mucositis compared to 73% in the control group who had an average duration of Grade 3-4 mucositis of 8 days (median 6 days). Patients that received palifermin had a mean LOS of 34.4 days (median 25.0 days) compared to mean of 36.5 days (median 28) for the control group. The average number of TPN days with palifermin recipients was 12.2 days (median 9.0 days) compared to 8 days (median 9 days) in the control group. For one patient who received palifermin, TPN usage (37 days) was indicated for severe nausea rather than mucositis. The total costs of antibiotics, antifungals and TPN during the period of hospitalisation was on average $AUD18,811 (median $AUD5,606) for those patients who received palifermin compared to $AUD18,324 (median AUD8,856) for those that did not .

Conclusion:
Palifermin usage was associated with a substantial decreased incidence and severity of oral mucositis with a reduction in LOS in patients who received TBI with allogenic PBSCT. Further validation of these results is required in a larger cohort of patients.

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ROLE OF TRANSFUSION IN STEM CELL TRANSPLANTATION: A FREEDOM-FROM-TRANSFUSION (FFT), COST AND SURVIVAL ANALYSIS

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Introduction: Transfusion of blood products is often an integral part of stem cell transplantation (SCT). Little literature exists to define the impact of transfusion on the outcome of SCT.

Methods: In an attempt to evaluate the need and volume of transfusion in patients undergoing SCT in our institution, we retrospectively evaluated the records of all patients who received SCT from 1995 till 2000.

Results: Out of 210 patients, 154 patients received autologous SCT and 56 patients received allogeneic SCT between 1995 and 2000. Non-Hodgkin's lymphoma (53%) and leukemia (73%) were the most frequent indications for autologous and allogeneic SCT respectively. Peripheral blood stem cell (PBSC) was used in all but one patient undergoing autologous SCT. Fifty patients received PBSC and 16 patients received bone marrow as the source of stem cells during allogeneic SCT. One hundred thirty eight (90%) out of 154 patients undergoing autologous SCT and 24 (43%) out of 56 patients with allogeneic SCT exhibited total hematopoietic engraftment and freedom from transfusion (FFT). Time to achieve FFT in days (median; range) for RBC units for autologous SCT (12; 0-183) was significantly shorter compared with allogeneic SCT (16.5; 0-373). Number of RBC units (median; range) transfused were less in patients undergoing autologous SCT (4; 0-26) compared with patients undergoing allogeneic SCT (6.5; 0-54). The median cost of transfusion was significantly higher in patients undergoing allogeneic transplantation (Red cell: $2015; and Platelet: $4480) compared to patients undergoing autologous transplantation (Red cell: $1240 and Platelet: $2520). The number of transfused RBC and platelet units negatively correlated with overall survival (median duration of follow-up: 1.3 years) in patients with autologous SCT, but not in patients with allogeneic SCT. This significance remained valid in both continuous regression analysis by Cox and dichotomous analysis (above and below median number of transfused units) by Kaplan-Meier.